Project Narrative

I. Cover Page

Project Title: Allegheny County Targeted Air Shed Grant PM2.5-Electric Chargers to Reduce Transportation Emissions

Project Location: Allegheny County PM2.5 (2012 Annual Standard) Non-Attainment Area

Applicant Information:

Organization: Allegheny County Health Department (ACHD)
ACHD is responsible for the development and implementation of the state implementation plan (SIP) to attain and maintain the national ambient air quality standard for PM2.5 within the Allegheny County PM2.5 (2012 Annual Standard) Non-Attainment Area defined in Section I.B. of the RFA. The ACHD is currently receiving a continuing air program grant under Section 105 of the Clean Air Act to carry out those responsibilities. (Grant#A-003041-20-2).

Address:
542 Fourth Avenue
Pittsburgh, PA 15219
412-578-8005

Contact: Ms. Jayme Graham, Manager, Air Quality Program
Phone: 412-578-8103, Fax: 412-578-8144
Email: Jayme.Graham@AlleghenyCounty.US

DUNS number: 0019057360000

Budget Summary:

EPA Funding Requested	Voluntary Cost Share, if applicable	Total Project Cost
$7,516,950	$0	$7,516,950

There will also be $700,000 in 'Leveraging."

Project Period: January 1, 2022, to December 31, 2026.

Project Description:
The project will facilitate the Port Authority of Allegheny County's transition from diesel to electric transit buses through funding the purchase and installation of three fast electric chargers and a generator at the Wilkinsburg East Busway Station to support the operation of fifteen battery electric buses for Bus Rapid Transit service in the Downtown – Uptown – Oakland – East End corridor.

II. Work-Plan

This narrative proposal addresses the category of "Other projects that achieve quantifiable emissions" found in Section I.C.1 of the RFA.

Section 1. Project Summary and Approach

a. Detailed Project Summary

The PM2.5 concentrations in Allegheny County are among the highest in the nation and compromise the health and well-being of Allegheny County's residents. This project represents one action being taken to respond to residents, elected officials and environmental health advocates seeking more actions to reduce PM2.5 in Allegheny County. The three electric charging stations will be a key investment facilitating advancement of an electric bus program which will reduce emissions of fine particulate matter (PM2.5) from mobile sources and result in improvement in air quality in Allegheny County, helping Allegheny County to continue to maintain attainment of the National Ambient Air Quality Standard for PM2.5.

Exposure to PM2.5 is associated with short-term health effects such as eye, nose, throat and lung irritation, coughing, sneezing and runny nose, shortness of breath and asthma attacks. Allegheny County residents who inhale PM2.5 increase their chances of needing to be admitted to hospitals for treatment of respiratory and cardiovascular ailments. According to epidemiological studies, long-term exposure to fine particulate matter may be associated with increased rates of chronic bronchitis, reduced lung function and increased mortality from lung cancer and heart disease. Those with breathing and heart problems as well as children and older adults may be particularly sensitive to PM2.5.

Location and Background

This project involves purchase and installation of three fast electric charging stations at the Wilkinsburg East Busway Station to facilitate operation of fifteen zero tailpipe emission battery electric 60-foot buses for operation in Pittsburgh's Downtown – Uptown – Oakland – East End Bus Rapid Transit (BRT) corridor. The corridor is located in the City of Pittsburgh and Wilkinsburg Borough both of which are within Allegheny County. A map showing the corridor and the project site is included in the application as Attachment A. A drawing focusing on the project site showing the location of the chargers in relation to the station is included as Attachment B.

The Port Authority of Allegheny County (Port Authority or PAAC) is Allegheny County's public transportation provider. It operates a bus and rail network comprised of 100 routes, an inclined plane, and a paratransit system, all of which carry over 64 million riders annually (2019). Port Authority's transit vehicle fleet includes 736 35-foot, 40-foot and 60-foot buses.

Since the late 1980s, environmental advocates, public health professionals and citizens have sought reduction in transportation source emissions. The Clean Air Act Amendments (CAAA) of 1990 was the first federal legislation requiring diesel engines used in heavy-duty vehicles such as transit buses to have significantly reduced emission levels of PM2.5 and its precursors, NOx, VOCs and SO2. The CAAA implemented a schedule of progressively tighter PM2.5 emission levels for urban transit buses with a 98% reduction in PM2.5 emissions between 1990 and 2015. To comply with the CAAA, the engines on Port Authority's buses have become progressively

cleaner. Smoke plumes emitted from the engines have become virtually non-existent. For 2015 and later, the CAAA standards for transit buses specify emission levels of 0.14 grams per brake horsepower-hour (g/bhp-hr) for hydrocarbons, 0.02 g/bhp-hr for nitrogen oxides and 0.01 g/bhp-hr for particulate matter. **However, even with these stringent standards, elimination of all vehicle-generated diesel exhaust is desired by the public, stakeholder groups and many of the area's elected officials**.

The Downtown – Uptown – Oakland – East End Corridor in the City of Pittsburgh is the most heavily traveled transit corridor in Southwestern Pennsylvania and includes the second (Downtown Pittsburgh) and third (Oakland) largest employment centers and generators of traffic in the Commonwealth of Pennsylvania. Other neighborhoods within the corridor are some of Pittsburgh's most densely populated communities.

To accommodate the demand, Port Authority currently provides a very high level of transit service in the corridor, particularly between Downtown and Oakland. Eight routes linking Downtown and Oakland with communities east of Oakland converge in Oakland and, collectively, combine to provide service up to every 2 – 3 minutes during weekday peak periods. Although a very high level of service is provided, intense traffic congestion within much of the corridor results in low speeds, unreliable service, uneven trip spacing and frequent overcrowding on vehicles. To reduce travel times, increase reliability and enhance the efficiency of the service, Port Authority has partnered with Allegheny County, the City of Pittsburgh and the Urban Redevelopment Authority to implement a Bus Rapid Transit (BRT) project in the corridor. The project involves establishment of exclusive bus lanes in the Downtown – Uptown – Oakland segment of the corridor, replacing numerous bus stops with stations, installing traffic signals at key intersections which prioritize bus movements, operation of an enhanced fare collection system, provision of real time information and acquisition of stylized, branded vehicles.

The National Environmental Policy Act (NEPA) review, a Categorical Exclusion (CE), has been completed. The Federal Transit Administration (FTA) approved the CE in October 2018, and the project is currently in the Final Design phase. Construction is scheduled to begin in late 2021 and revenue service would be inaugurated in late 2023 or early 2024.

A key component of the project is operation of vehicles dedicated to BRT service. The buses will be branded to identify them as vehicles serving the BRT corridor. For the core service between Downtown and Wilkinsburg, fifteen 60-foot battery electric buses are proposed. Electric chargers are needed to facilitate battery electric bus operation. **This grant seeks funding for the three fast electric chargers and a generator to be located at the Wilkinsburg Station of the Martin Luther King, Jr. East Busway (East Busway) which will be the terminus of the BRT route.**

In accordance with Section I.C.1 of the RFA, this project complements ACHD's project submitted to the 2019/2020 EPA Targeted Airshed Program which will fund the purchase of seven of the fifteen 60' battery electric buses proposed for the BRT service and an electric charger to be located at the East Liberty Garage at which these buses would be based. See Award Number TA-96382701-0 of 10/14/2020, "Allegheny County TAG Application of Transportation Related Emission Reduction." None of the equipment involved in the current (2021) project narrative has already been funded by the 2019-2020 TAG award.

Citizens, environmental advocates and stakeholders in Pittsburgh and Allegheny County are seeking not just to reduce overall PM2.5 emissions, but eliminate such emissions directly generated from vehicles. This project will install three fast chargers which will serve 15 BEBs. Emission reductions for the chargers will be based upon the emission reductions of the buses that

they serve. However, because the 2019-2020 TAG application took credit for emission reductions of seven of those buses, this application can only take credit for emission reductions of the remaining eight of fifteen buses. The emission reductions due to the three fast chargers are therefore – for purposes of this grant application - equal to those that would result from replacing eight diesel buses with eight BEBs: Annual emission reductions of 0.009 tons for PM2.5; 0.543 tons for NOx; 0.029 tons for HC; and 0.115 for CO; and a savings of 82,216 gallons of diesel fuel annually. In the future, the more electric buses these chargers serve, the higher their emission reductions will grow beyond that for which this application can take credit for.

b. Emissions Inventory

The emissions inventory is taken from the "Attainment Demonstration for the Allegheny County, PA PM2.5 Nonattainment Area, 2012 NAAQS." Pollutants inventoried there include primary (direct) PM2.5 along with precursors SO2, NOx, VOC, and NH3. (Ref: Chapter 4 of SIP90 linked here: Regulations and SIPs | Air Quality | Health Department | Allegheny County)

The emissions inventories were compiled for all major and some minor sources within Allegheny County. Sources in the emissions inventories include stationary point sources, area sources, nonroad mobile sources, and onroad mobile sources. Fire and biogenic emissions are also included in the inventory. The year 2011 was used for base case emissions inventory, projected to a future case attainment year of 2021. (Note that at the time the detailed analysis was done for SIP90, the year 2021 was the "future" case. ACHD continues to refer use this terminology because this emission inventory analysis is the most current available.)

Allegheny County Emissions Inventory (Future Case - 2021)

Source type	PM2.5	PM2.5(filt)	PM2.5(cond)	PM10	SO2	NOx	VOC	NH3
Point	2,256	1,256	999	2,722	5,921	7,928	1,534	202
Area	2,708	2,226	472	5,486	1,079	6,664	10,221	615
Nonroad mobile	234	234	0	248	5	2,212	2,752	6
Onroad mobile	**266**	**266**	**0**	**722**	**31**	**5,708**	**3,479**	**209**
Fires	24	24	0	29	2	5	64	4
Biogenics	0	0	0	0	0	166	5,876	0
Total	5,488	4,007	1,471	9,207	7,039	22,686	23,926	1,037

Within the inventory, "onroad" sources include passenger cars, light-duty trucks, heavy-duty trucks, buses, and motorcycles. The Motor Vehicle Emissions Simulator (MOVES) model was utilized to generate emissions based on traffic counts, vehicle speeds, vehicle population growth, and other factors. The inventory listings by process are included in the Appendix D (Emissions Inventories) of the Attainment Demonstration, including a summary of specific local source revisions and projections. Table D.9 addresses source category inventories related to the proposed project. Excerpts relevant to the project are shown below.

Table D.9 Future Case (2021) Onroad Mobile Sources (tons/yr)
(Excerpt from attached Appendix D of Attain Demonstration)

Fuel	Vehicle Class	PM2.5	PM10	SO2	NOx	VOC	NH3
Diesel	Heavy Duty	115.759	203.013	7.290	2428.913	162.108	12.216

Methodologies - Documentation of the regional inventory development is included in the Allegheny County Portion of the Pennsylvania SIP for PM-2.5 2012 standards, submitted to EPA by the state on September 30, 2019 ("2019 SIP"), Appendix E (Emissions Inventory Documentation). Emissions inputs used for the modeling are described in Section 5 (Modeling Demonstration) and Appendix F (Modeling Protocols) of the same SIP.

c. Consideration of Activities

The Electric Charger Project will support operations of the cleanest available transit technology - electric buses. The electrification of bus transit, which uses the lowest emission technology currently available, is, in particular, highly innovative. Nearly all public transit in Western Pennsylvania is powered by diesel fuel or other carbon-based fuel sources such as compressed natural gas. Electric buses' advantage over buses powered with carbon-based fuel sources is the elimination of all vehicle tailpipe emissions. Electric buses also potentially generate significant operating and maintenance cost savings due to the relatively high energy efficiency of electric motors and significantly fewer moving parts compared to internal combustion engines.

Technology Selection

Port Authority's general approach to bus procurement has been to purchase diesel buses with increasingly cleaner diesel engines, including diesel-electric hybrid buses. While the cleaner diesel and diesel hybrid buses have generated significantly lower levels of PM2.5 emissions compared to the engines on earlier diesel buses, the operations of these vehicles still generate some PM2.5 tailpipe emissions.

From the mid-1990s through the 2010s, battery electric technology for transit buses underwent major improvements. Initially, this technology was primarily used for short-distance shuttle and circulator services such as those in Chattanooga, TN and Santa Barbara, CA. Subsequently, battery electric propulsion technology had sufficiently improved for application to longer distance, heavy-duty urban transit service. In March 2020, Port Authority began operating its first two (40-foot) battery electric buses out of its East Liberty Bus Garage, on a variety of bus routes, to test their capabilities. Six more battery electric buses will be delivered to Port Authority by September 2021.

In 2014, the Traffic21 Institute of Carnegie Mellon University evaluated and compared the eight bus propulsion technologies for 40-foot and 60-foot vehicles specifically for Port Authority. The study results are documented in the report, "Which Alternative Fuel Technology is Best for Transit Buses?" included as Attachment C in this application. **The Traffic21 researchers recommended that Port Authority proceed with battery electric bus (BEB) technology because it offered the greatest reductions in emissions among the technologies while providing significant reductions in operating and maintenance costs for the agency.**

d. Progress Towards Attainment

The project will help Allegheny County maintain continued attainment of the PM2.5 NAAQS. The electric chargers will facilitate replacement of 15 clean diesel-powered transit buses with enhanced, battery electric buses. As fast chargers can quickly regenerate batteries on a transit bus, these three chargers can also support additional BEBs as Port Authority is able to add them to its fleet and assign them to routes serving Wilkinsburg.

The PM2.5 concentrations in Allegheny County are among the highest in the nation and compromise the health and well-being of the Allegheny County residents. Allegheny County's citizens, stakeholders and elected officials seek greater reductions in PM2.5 and its precursors. The overall BRT project will provide significant mobility benefits for Allegheny County's residents, employees, students and visitors living within or traveling to and from attractions within the corridor. To the extent that the BRT transit improvements will cause travelers to shift

from automobiles to transit, air quality within the corridor will improve. Replacing diesel buses with BEBs will enhance the corridor's air quality even further. Vehicle tailpipe PM2.5 emissions, and precursor tailpipe NOx, HC and CO emissions will be eliminated for all transit trips operated with BEBs instead of diesel buses. According to the EPA's Diesel Emissions Quantifier (DEQ), operation of eight of the fifteen BEBs for which this application can take emission reduction credit for, would result in an annual reduction of PM2.5 emissions by 0.009 tons in the BRT Corridor.

Elimination of PM2.5 and its precursor emissions from transit buses will contribute to Allegheny County continuing to maintain attainment the annual PM2.5 NAAQS.

e. Roles and Responsibilities

The Allegheny County Health Department (ACHD) is the applicant. ACHD is responsible for preparing the grant application and administering the grant.

The Port Authority will be a project participant partner and a sub-awardee and responsible for procuring and installing the three fast electric chargers along with the generator. Additionally, the Port Authority will be responsible for operating and maintaining the electric chargers.

Section 2. Environmental Justice

a. Environmental Justice Issues and Environmental Health Disparities

Affected Communities

The following are the affected City of Pittsburgh neighborhoods along the core route of the BRT corridor: Downtown, Crawford Roberts, Uptown, South Oakland, West Oakland, North Oakland, Bloomfield, Shadyside, East Liberty, Larimer, Point Breeze North, Homewood West and Homewood South. Additionally, the Borough of Wilkinsburg, an eastern suburb, is located within the corridor.

As documented in the Environmental Justice chapter of the BRT Categorical Exclusion (CE) report, Allegheny County's and the City of Pittsburgh's minority population are approximately 22 percent and 33 percent, respectively. For Allegheny County and Pittsburgh, the percent of the population which is low-income (households with a median income at or below 150 percent of Department of Health and Human Services poverty levels) are approximately 20 and 32 percent, respectively. Based on the demographic data and mapping by block group, and applying Federal Transit Administration guidance, the entire BRT project corridor is comprised predominantly of environmental justice communities. The greatest concentrations of environmental justice populations (minority and low income) in the BRT corridor are in the Terrace Village, Upper Hill, North Oakland, West Oakland, Squirrel Hill North, East Liberty and the Larimer neighborhoods. Attachments D and E are maps showing, respectively, the locations of minority and low-income populations in the corridor.

Per the CE, the proposed BRT project would include the use of new battery electric buses (BEBs) supported by the three electric chargers proposed in this application. The proposed BRT project is also expected to improve travel times and reduce vehicle miles traveled. Overall, the proposed BRT project would have no adverse impacts and is anticipated to result in improved air quality benefits by reducing energy consumption and polluting emissions.

The Carnegie Mellon University's Center for Atmospheric Particle Studies evaluation identified locations in Allegheny County with higher-than-average concentrations of black carbon. As shown in the map included as Attachment F to this application, there are high levels of black carbon, an indicator of high PM2.5 levels, along the entire BRT route alignment and its adjacent environmental justice communities from Downtown Pittsburgh to Wilkinsburg. Deployment of BEBs on this alignment would eliminate tailpipe PM2.5 emissions from transit vehicles operating in BRT service, thus improving the health outcomes for people residing in this corridor's environmental justice communities.

b. Community Engagement

Community Engagement

Between 2011 and 2021, Port Authority engaged in a robust program of public outreach to the communities in the BRT corridor. Throughout most of this process, BEBs were specifically proposed as the vehicles providing the core service in the corridor and plans along with renderings of the electric chargers were presented at meetings convened in Wilkinsburg. The public outreach program has included the following:

- A stakeholders advisory committee with representation of communities within the project corridor (a list of members is included as Attachment G);
- Public meetings to present plans, street designs and service concepts;
- Presentations to neighborhood organizations, business groups, stakeholders and elected officials;
- Meetings with organizations representing people with disabilities; and
- Meetings convened in early 2021 to present the 90% design.

Significant community and stakeholder outreach has also occurred for NEXTransit, Port Authority's Long-Range Plan. One of the major policies being advanced in the plan is further electrification of Port Authority's bus fleet. Thus, when deployment of BEBs occurs, partnerships with the community and stakeholders will have been established which will facilitate dissemination of information in the BRT corridor about the new vehicles and the chargers supporting their operation.

Partnerships

The Southwestern Pennsylvania Commission (SPC), which is the Metropolitan Planning Organization for the Southwestern Pennsylvania region, supports this project. In its June 10, 2021 letter to the Allegheny County Health Department included in this application, SPC states that the project is consistent with the Smart Moves Plan, the region's long-range plan as follows:

- Support and encourage transportation projects and programs that will contribute to attainment or maintenance of the NAAQS for PM
- Modernize supporting infrastructure (High Tech Mobility)
- Invest in renewable resources (Tackle Climate Change, Air, & Water)

Vehicle electrification, in general, and electrification of transit buses, in particular, is a priority for the Pittsburgh region. The Duquesne Light Company (DLC) is advancing a Transportation Electrification Strategy to accelerate the adoption of electric vehicle in the region. A letter of support from DLC is included in this application.

City of Pittsburgh, a BRT project partner, views the BRT project not only representing a critical investment in sustainable public transportation, but a critical investment the air quality of our region and the public health of our communities. Per its June 11, 2021 letter to the Allegheny County Health Department included in this application, the City of Pittsburgh states that the project aligns with the City's Climate Action Plan 3.0 which recommends increased use of electric vehicles to reduce air pollution and greenhouse gas emission. An emissions and recommendations summary of the City's Climate Action Plan is included as Attachment H and a City Council Resolution adopting the Plan is included as Attachment I.

Allegheny Places, Allegheny County's Comprehensive Plan, states that its aim is to "Protect and enhance the environment and public health by promoting energy conservation and continuing to improve the County's air quality." This project is consistent with this objective as electric buses are much more energy efficient than diesel buses and eliminate tailpipe emissions. A letter of support from Allegheny County Executive Rich Fitzgerald is included in this application.

Section 3. Environmental Results – Outcomes, Outputs, and Performance Measures

a. Expected Project Outputs and Outcomes

The project will significantly reduce emissions of particulate matter PM2.5, especially in environmental justice areas. The result is that this project supports the EPA Strategic Plan Goals described below:

EPA's 2018-2022 Strategic Plan Goal 1, "A Cleaner, Healthier Environment"; Objective 1.1: "Improve Air Quality" –"conduct a wide range of activities that contribute to improving air quality and protecting human health and the environment."

i. Outputs. Outputs include installation and operation of three Port Authority Transit electric chargers to support battery electric bus operation in the Bus Rapid Transit corridor. Other expected outputs include the quarterly progress reports and a final report delivered in accordance with the grant requirements.

ii. Outcomes. Through this project and this grant, PM2.5 emissions will be reduced in the City of Pittsburgh and Allegheny County's eastern sector, including where several environmental justice communities are located. This PM2.5 reducing emissions project will beneficially affect the Allegheny County PM2.5 non-attainment area as exposure to PM2.5 is associated with short-term health effects such as eye, nose, throat and lung irritation, coughing, sneezing and runny nose, shortness of breath and asthma attacks. People breathing in PM2.5 are more likely to need to be admitted to hospitals for treatment of respiratory and cardiovascular hospital ailments. Studies also suggest that long term exposure to fine particulate matter may be associated with increased rates of chronic bronchitis, reduced lung function and increased mortality from lung cancer and heart disease. Adults with breathing and heart problems as well as children and the elderly may be particularly sensitive to $PM_{2.5.}$

The three electric chargers are integral to the operation of battery electric buses which will eliminate vehicle generated emissions. As already explained the emission reductions of the three fast chargers will be based on the emission reductions of eight of 15 buses expected to be served. According to the EPA'S DEQ, replacing eight diesel buses with eight BEBs would result in annual emission reductions of 0.009 tons for PM2.5; 0.543

tons for NOx; 0.029 tons for HC and 0.115 tons for CO, and eliminate consumption of 82,216 gallons of diesel fuel annually. According to the Traffic 21 research cited above, agency costs for owning, operating and maintaining a battery electric bus BEB is 24% less over its lifetime compared to a conventional diesel bus. Also, to the extent that travelers in automobiles are enticed to public transit air quality will be enhanced further. Finally, knowledge and experience gained from the BEB project will be shared to enhance the transit industry's understanding of BEB technology.

The project will promote progress towards achieving environmental justice objectives. As noted above, environmental justice communities comprise much of the BRT corridor and higher than average concentrations of black carbon, an indicator of high PM2.5 levels, are present in much of the corridor. Elimination of vehicle-generated exhaust from transit buses will reduce overall PM2.5 in the communities along the BRT corridor. This will improve overall short-term and long-term health for environmental justice populations in the corridor.

Anticipated Outputs and Outcomes	
Outputs	***Outcomes***
Installation of three electric charging stations supports the replacement and operation of 15 clean diesel-powered transit buses with enhanced, battery electric buses. Emission reductions are based on reductions from 8 of the 15 buses supported.	Elimination of transit vehicle generated emissions. Annual emission reductions = 0.009 tons of PM2.5, 0.543 tons of NOx, 0.029 tons of HC, and 0.115 tons of CO.
	Lifetime emission reductions = 0.066 tons of PM2.5, 3.800 tons of NOx, 0.203 tons of HC, and 0.802 tons of CO.
	Annual diesel fuel savings = 82,216 gallons
	Lifetime diesel fuel savings = 575,512 gallons
	Reduction of emissions from private vehicles due to modal shift.

b. Expected Emissions Reductions

This project will eliminate vehicle generated emissions. According to the EPA Diesel Emissions Quantifier (DEQ), replacing eight Model Year 2011 diesel buses which average 34325 Vehicle Miles Traveled annually and use on average 10277 gallons of diesel fuel annually while idling on average 340 hours annually, with eight BEBs would result in annual emission reductions of 0.009 tons for PM2.5; 0.543 tons for NOx; 0.029 tons for HC and 0.115 ton for CO, and save 82,216 gallons of diesel fuel annually. Lifetime emission reductions over the course of a seven-year lifetime (assumed in order to be consistent with other TAG funded projects) are 0.066 tons of PM2.5, 3.800 tons of NOx, 0.203 tons of HC, and 0.802 tons of CO, while saving 575,512 gallons of diesel fuel. Based on the onroad diesel inventory information already presented above in Table D.9 and copied below for ready reference, this will reduce the inventory of On-road, Heavy-Duty Diesel PM2.5 emissions by 0.009 tpy or 0.008 percent, and NOx emissions by 0.543 tpy or 0.02 percent.

Table D.9 Future Case (2021) Onroad Mobile Sources (tons/yr)
(Excerpt from attached Appendix D of Attain Demonstration)

Fuel	Vehicle Class	PM2.5	PM10	SO2	NOx	VOC	NH3
Diesel	Heavy Duty	***115.759***	203.013	7.290	***2428.913***	162.108	12.216

c. Performance Measures and Plan

The extent of procurement and installation of the three electric chargers and the generator will be the performance measures. The ACHD will track the extent of procurement and the placing into service of the three electric chargers and the generator, through quarterly reports required of the project participant partner, through invoice tracking, and through on-site inspections of replacement equipment.

d. Timeline and Milestones

Electric chargers will be delivered and installed within about 15 months after placing the order. Three electric chargers will be installed at the Wilkinsburg Station of the East Busway along with the generator. Some site preparation work would be needed. However, no work on any adjacent property would be needed to install and operate the facilities proposed in this application. The electric chargers were part of the project as evaluated in the Categorical Exclusion for this project which was approved by the Federal Transit Administration in October 2018. No further environmental evaluation is required, which significantly simplifies and expedites delivery of this project.

Estimated and reasonable timeline for various tasks associated with the project.

Activity	Responsible Entity	Estimated Timeline
Grant preparation & submittal	ACHD, w/project participant partner	June 24, 2021
EPA review of app and selection notification	EPA	June 25, 2021 to September 2021.
Prep ACHD/project participant partner agreement.	ACHD, w/project participant partner	January 1, 2022 to May 31, 2022.
Order & procure electric chargers and generators	PAAC	See detailed PAAC Schedule, below.
Begin use of chargers to support revenue bus service	PAAC	See detailed PAAC Schedule, below.

Detailed PAAC Schedule

EPA Announces Award	September 1, 2021
Port Authority Board approves vendor to manufacture electric chargers	February, 2022
Issue Notice-to-Proceed to selected vendor to begin work at Wilkinsburg Station	March, 2022
Beginning of site work at Wilkinsburg Station	Early 2023
Completion of site work at Wilkinsburg Station	Mid 2023
Installation of the electric chargers and generator	Mid 2023
Testing of electric chargers and generator and staff training	Mid 2023
Begin use of electric chargers for BEBs operating in revenue BRT service	Late 2023/Early 2024

Note: Schedule subject to revision per project partner decision-making

Section 4. Programmatic Capability and Past Performance

a. Past Performance

EPA- Funded Projects of this type in the last three years:

Assistance Agreement #1
Title: Allegheny County TAG Application of Transportation Related Emission Reduction
Assistance agreement number: TA96382701-0
Federal funding agency and assistance listing number: CFDA 66.956

Project description: That project assists the Port Authority of Allegheny County to move from diesel to electric transit buses by funding the differential in cost between the two types of motive power for seven buses and adding one electric charging station (at a different location than the charging stations being applied for now). That project involves replacing seven 60-foot diesel transit buses with seven zero tailpipe emission battery electric 60-foot buses for operation in Pittsburgh's Downtown – Uptown – Oakland – East End Bus Rapid Transit (BRT) corridor in the City of Pittsburgh and Wilkinsburg Borough, both of which are located in Allegheny County.
The project is ongoing and is being managed appropriately.

Assistance Agreement #2
Title: Allegheny County Fireplace Conversion Pilot Project – Reducing Air Pollution
Assistance agreement number: XA-96343101-01
Federal funding agency and assistance listing number: CFDA 66.034

Project description: The Allegheny County Health Department, with $20,000 in funding provided by the U.S. EPA, and $50,000 from its own Clean Air Fund, conducted a pilot program to convert residential open-hearth fireplaces to vented gas-burning fireplace appliances. In this pilot program, a $400 incentive was offered to non-low income County residents and a $1500 incentive was offered to low-income County residents to encourage the purchase and installation of gas appliances in the fireplaces of their Allegheny County homes. The overall goal of the pilot program was to inform the EPA and the ACHD on the methods and processes required to implement a fireplace conversion project, with an associated goal of conducting some outreach on asthma.

The federally funded portion of this project was completed in August of 2019 with the expenditure of all EPA funding. However, the fireplace conversion program is yet ongoing until at least August 31, 2021 with local ACHD funding. The ACHD submitted its final report to U.S. EPA and signed the closeout document (FFR) 11/19/2019. It is ACHD's understanding that the EPA considered ACHD's management of the project to be appropriate in all regards.

Assistance Agreement #3
Title: Allegheny County Clean Air Act Section 105 Grant Assistance
agreement number: A-003041-20-2
Federal funding agency and assistance listing number: CFDA -66.001

The ACHD successfully completes and manages a Clean Air Act Section 105 grant (Grant# A-003041-20-2) for Support of Air Pollution Planning and Control Programs

It is ACHD's understanding that the EPA considered ACHD's management of the agreement to be appropriate in all regards.

b. Reporting Requirements

The Department regularly meets the reporting requirements under those agreements and documents the progress the Air Quality Program makes toward achieving the expected results, i.e., outputs and outcomes, by completing the EPA work plan documents as necessary. For Assistance Agreement #1, there have only been two quarterly reporting periods to date. ACHD submitted a quarterly report within a month of the end of the reporting period for the first period, but was late for the second reporting period. For Assistance Agreement #2, an approximate review of emails indicates a quarterly report was submitted for each quarter with an on-time (submitted within the one month after close of reporting period) rate being about 50% but with most late reports being late by less than a week. For Assistance Agreement #3, it is believed that these are routinely submitted on time.

c. Staff Expertise

Jayme Graham, Manager of the ACHD Air Quality Program and **Sandra Etzel**, Manager of Planning for the AQP, and **Jason Maranche**, Air Pollution Control Engineer, have significant knowledge of the issues surrounding the Allegheny County PM2.5 designation and what actions must be taken to continue to maintain attainment. ACHD has experienced grant managers and other resources necessary to successfully manage this grant. Deputy Director, **Kim Joyce**, and Finance Manager, **Keith Horner**, have had experience with state and federal grants, and will provide fiscal management for this project and will submit all required reports. Ms. Graham and Ms. Etzel have successfully handled recent Clean Air Act Section 105 grant (A-003041-20), and a Section 103 Special Studies grant (Grant# PM-973128-02-0) for fine particulate matter PM2.5 monitoring. **Thomas Lattner**, Air Pollution Control Engineer, has experience with U.S. EPA grants (Current Targeted Air Shed Grant TA96382701-0, Fireplace Conversion Grant XA-96343101-1, 2015 Targeted Air Shed Grant EM-83493601-1, National Clean Diesel Funding Assistance Agreement 2A-97379401, and Woodstove Exchange Cooperative Agreement XA-83276801).

Since 2005, the ACHD Air Quality Program Staff has had significant experience with diesel powered equipment Retrofit/Repower/Replacement projects, including those funded by EPA ($3.5 Million ARRA Stimulus grant) and those it funds from its own Clean Air Fund. See table below.

Project	Equipment Retrofitted	Funding Amount & Source	Year
Penn Hills Schools	75 School Buses retrofitted w/DOCs	$185,000 ACHD Clean Air Fund	2005
Deer Lakes Schools	10 School Buses; DOCs	$10,650 ACHD Clean Air Fund	2006
City of Clairton	11 Municipal Vehicles; DOCs	$135,000 ACHD Clean Air Fund	2008
Port Authority	9 Bus repowers/2 New Hybrid buses	$1,007,500 EPA ARRA Stimulus	2009
CSXT Trans	1 Repowered switcher locomotive	$875,0000 EPA ARRA Stimulus	2009
Construct Assoc	40 Construction Vehicles	$1,231,939 EPA ARRA Stimulus	2009
Multi Serv Inc.	8 Dump Trucks retrofitted w/DPFs	$300,500 EPA ARRA Stimulus	2009
City of Pittsburgh	33 Refuse Trucks retrofitted w/DPFs	$433,000 EPA ARRA via the DEP	2009
"Build it with Clean Diesel"	Construction equip operated by small business in Allegheny County.	$920,000 ACHD Clean Air Fund made available. $375,000 spent.	2011 -2017
Neville Island Clean Diesel	26 off-road equip retrofit DPFs.	$750,000 ACHD Clean Air Fund	2014 -16

Section 5. Budget

For the Port Authority Electric Chargers project, the project participant partner will contribute "in-kind" services in the form of project management and all technical work during the project during the procurement, installation, testing and staff training phases. Port Authority staff will also perform all necessary maintenance activities to keep the chargers in operation.

The budget for this application proposes the following matches for the three electric chargers, one generator and associated site work.

Leveraged Funding ("Other" Leveraging) for the Battery Electric Buses Project

Item	Funding sources	Amounts
Site work (installation of curbs, landscaped areas, bus pull off area, etc.)		
	State Match	**$677,425**
	Allegheny County Match	**$22,575**
	Total Non-Federal Match	$700,000
Three electric chargers	EPA Targeted Airshed	$5,300,000
One electric generator, site work, general conditions and contingency	EPA Targeted Airshed	$2,200,000
Total "Other" Leveraging for Battery Electric Buses Project		**$700,000**

In addition, the electric chargers are an integral element of an overall Bus Rapid Transit (BRT) project for which funding is being secured from Port Authority, City of Pittsburgh, Allegheny County, Commonwealth of Pennsylvania and other federal sources. The overall amounts ("Other" leveraging) are as follows:

Source	Funding Amount
Port Authority	$53,996,488
City of Pittsburgh	$20,300,000
Allegheny County	$30,000,000
Commonwealth of Pennsylvania	$2,395,752
Federal	$123,307,760
Total	**$230,000,000**

This funding for the components other than the chargers and vehicles will be used to make street and intersections improvements, including dedicated bus lanes, to ensure the most effective operation of and reliable service of the buses. Additionally, stations with amenities will be installed along the BRT corridor which will enhance the appeal of transit service for existing riders and attract new riders to the system.

Through improvements such as transit signal priority and dedicated bus lanes, the new electric vehicles will not be just more buses on city streets. They will provide more reliable and effective service running on shorter schedules to enhance the overall experience for riders.

a. Budget Detail

Detailed Budget Narrative

The proposed budget for this project is $7,500,000 in grant funding and $700,000 in "Other" leveraged funding. ACHD's $7,516,950 grant funding request (includes ACHD Personnel Costs)

will be used to fund activities undertaken by ACHD and its project participant partner, the Port Authority, related to the purchase and installation of the three electric chargers and the generator, as well as site work. The Port Authority will also provide "In-kind" services of project management. ACHD "In – Kind" services include oversight of individuals tasked with ensuring that grant deliverables are being appropriately verified and tracked in all aspects from verification of work to expense and report tracking. ACHD is requesting minimal staff time for administrative tasks associated with contract management of its project participant partner and financial management.

	EPA Funding	**Non-Federal Cost Share**	**"Other" Leverage**
PERSONNEL – ACHD	**Federal**	**Cost Share**	**"Other" Leverage**
Fiscal Officer – $50,100yr x 5.75%	$2,881.00		
Contract Administrator – $45,000yr x 6%	2,700.00		
Air Quality Engineer – $65,000 x 10%	6,500.00		
TOTAL PERSONNEL	**$12,081.00**		
Fiscal Officer - 43% Fringe	$1,238.00		
Contract Administrator - 43% Fringe	$1,161.00		
Air Quality Engineer - 38% Fringe	$2,470.00		
TOTAL FRINGE BENEFITS	**$4,869.00**		
EQUIPMENT	**Federal**	**Cost Share**	**"Other" Leverage**
Port Authority - order and procure three electric chargers, generator, general conditions and contingency.	$7,500,000		
TOTAL EQUIPMENT	**$7,500,000**		
OTHER–PARTICIPANT SUPPORT COSTS	**Federal**	**Cost Share**	**"Other" Leverage**
Complete Detailed design	$0.00		In-kind
Site work			$700,000
TOTAL OTHER			**$0.00**
TOTAL FUNDING	**$7,516,950**		**$700,000**
TOTAL PROJECT COST (federal and non-federal)	**$7,516,950**		
Leveraged Resources	**$700,000**		

b. Expenditure of Awarded Funding

As indicated above in Section 3.d, "Timelines and Milestones," upon notification of being the recipient of an award under this RFA, the ACHD would immediately set about preparing a letter of agreement between ACHD and its project participant partner covering all aspects of the project. This legal contract details what the ACHD will fund, what the specifications the project participant partner must meet when procuring the equipment that is to meet the project objectives, what schedule requirements must be met to ensure that the federal funds are expended in a timely manner, what scrappage requirements must be met, if any, what reporting requirements must be met, what invoicing requirements must be met, and what federal administrative and programmatic

requirements must be met. This legal contract is approved at the highest appropriate level of all parties involved.

Once a contract/letter agreement is signed, control of the awarded federal funds is implemented by the Air Program through scrutiny of invoices to ensure expenditures are valid and appropriate, and by the ACHD Fiscal Manager, who follows all appropriate federal procedures in drawing down awarded funding. The Air Program Manager submits necessary periodic reports to the EPA detailing progress made during the reporting period to help ensure that awarded grant funds are expended in a timely and efficient manner.

c. Reasonableness of Costs

This grant application seeks $7,516,950 to purchase and install three fast (450 kW) electric chargers and associated infrastructure improvements comprised of electrical equipment.

Item	Units	Unit Cost	Total
Three 450 kW electric chargers	3	$1,766,667	$5,300,000
Electrical equipment (generator)	1	$900,000	$900,000
General conditions	1	$500,000	$500,000
Contingency	1	$800,000	$800,000
Administration (ACHD)			**$16,950**
Total Grant Funds			**$7,516,950**

ACHD's personnel charges are 5.75%, 6%, and 10% of annual hours for a Fiscal Officer, Contract Administrator, and Air Pollution Control Engineer and do not reflect hours worked by other personnel throughout the Air Program and Administration in delivering this project.

Leverage ("Other" leverage)

Leveraged Resources from the Port Authority of Allegheny County will exist in the form of project management, engineering and design of the equipment specifications, and site work performed at the Wilkinsburg Station of the East Busway to prepare the site for installation of the electric chargers and generator. This will involve installation of curbs, landscaping and improvements to the bus pull off area. The total cost of the site work is estimated to be $700,000. The Commonwealth of Pennsylvania would contribute $677,425 and Allegheny County would contribute $22,575.